



# **Agricultural Science Past Exam Questions**

## **Animal Production**

### **Higher Level**

**2013 – Question 1 – Part (a)**

(a) Name **three** breeds of pig including at least **two** breeds suitable for outdoor (non-intensive) rearing.

**2013 – Question 3 – Option 2**

(a) Fostering lambs is a skill in sheep husbandry.

(i) Explain the term fostering in this context.

(ii) Outline three methods used in fostering lambs.

(b) (i) Discuss why overcrowding in cattle sheds can cause serious animal health problems.

(ii) Give one effect of overstocking in a paddock situation.

(c) (i) In the case of early fat lamb production, state:

1. a suitable ram breed

2. a suitable ewe type.

(ii) Justify your selection in each case.

(48 marks)

**2013 – Question 5**

(a) Briefly outline the main principles in bull beef production.

(b) Outline the management principles for the dairy cow in mid-to-late lactation.

(c) Suggest reasons for a high total bacterial count (TBC) in milk.

(48 marks)

**2012 – Question 1 – Part (e)**

(e) Roughage must be included in the diet of a calf.

(i) Suggest a reason for including roughage.

(ii) When is roughage introduced?

(iii) Name a suitable food that could be used as roughage.

**2012 – Question 1 – Part (j)**

- (j) (i) Indicate the average litter size and the target number of bonhams weaned per annum for a sow.
- (ii) Suggest two ways by which the number of bonhams weaned per annum could be increased.

**2012 – Question 3 – Option 1**

- (a) Using a table or a pie-chart, show the composition of cow's milk.
- (b) (i) List four factors that can cause changes in milk composition.
- (ii) Fully explain any two of the factors referred to above.
- (c) Contamination of milk is a problem in milk processing.
- (i) List three contaminants of milk.
- (ii) Describe an experiment to test the hygienic quality of milk.

(48 marks)

**2012 – Question 3 – Option 2**

- (a) Discuss the role of scanning in sheep production.
- (b) (i) Explain the term terminal sire as it applies in sheep breeding.
- (ii) Suggest two breeds that could be used as terminal sires.
- (iii) Give a reason for each of your choices in part (ii).
- (c) Compare flushing with steaming-up as feeding strategies in sheep production.

(48 marks)

**2012 – Question 6**

- (a) (i) Construct the typical growth curve graph for the two-year 'calf-to-beef' production system.
- (ii) On your graph show clearly:
1. Target weights at first winter housing and second winter housing.
  2. Where compensatory growth begins.
- (iii) Suggest a suitable diet for the beef cattle in the first and second winter.

- (b) Suggest a suitable mastitis-prevention programme in a spring-calving dairy herd.
- (c) Outline the role of any one hormone in milk production in a lactating cow.

(48 marks)

**2011 – Question 3 – Option 1**

- (a) Compare summer grazing and winter fattening as systems for finishing beef animals.
- (b) Describe four qualities a farmer would look for when selecting replacement heifers for a dairy herd.
- (c) Food Conversion Efficiency (FCE) decreases with age in farm animals.
  - (i) Explain the underlined term and give an example of FCE for a named farm animal.
  - (ii) Explain why FCE decreases with age in an animal.
  - (iii) Explain how a farmer might improve the FCE of his herd.

(48 marks)

**2010 – Question 1 – Part (c)**

- (c) Account for the increasing popularity of maize silage as a feed for dairy cows.

**2010 – Question 3 – Option 1**

- (a) The calving records on a dairy farm in one year show:  
30% purebred Friesian calves born, 55% Continental X Friesian and 15% Aberdeen Angus X Friesian.  
The farmer relies on A.I. and has no stock bull. He breeds his own replacements.
  - (i) Why was the Friesian breed used and on which of his cows?
  - (ii) Why are continental sires used for most inseminations?
  - (iii) Why are Aberdeen Angus bulls used?
  - (iv) What is his replacement rate for culled cows?
- (b) Describe the physiological processes involved in the let-down of milk in farm animals.
- (c) Suggest four reasons why dairies will not accept milk from cows that have been recently treated for mastitis.

(48 marks)

**2010 – Question 5**

(a) Discuss the role of the following in sheep production:

(i) a raddling harness

(ii) footrot.

(b) (i) Suggest four reasons why dairy farmers find it necessary to reseed their paddocks on a regular basis.

(ii) Suggest a suitable seed mixture that could be used when re-seeding a paddock.

(c) Explain the significance of the leaf-to-stem ratio in relation to silage quality.

(48 marks)

**2010 – Question 8 – Part (a)**

(a) In the context of fat lamb production, discuss the statement “the ewe looks after quantity while the ram looks after quality”.

**2009 – Question 1 – Part (g)**

(g) Give three reasons for the increasing use of artificial insemination (AI) in farm animals.

**2009 – Question 3 – Option 1**

(a) Outline the contrasting breeding strategies employed in two differing dairy farms, one involved in liquid milk production, the other a creamery milk supplier.

(b) For a spring-calving maiden heifer construct a graph showing her growth-curve over the two-year period. Your graph should indicate target weights at:

(i) birth

(ii) first winter housing

(iii) service

(iv) calving.

(c) Give three reasons for the rest period between the end of one lactation and the start of the next.

(48 marks)

**2008 – Question 1 – Part (f)**

- (f) (i) Why are mineral and vitamin supplements used in the diet of farm animals?  
(ii) How are these supplements supplied to farm animals?

**2008 – Question 1 – Part (h)**

- (h) Give the approximate value of each of the following for pigs;
- (i) weight at birth (kilograms),
  - (ii) age at puberty (months),
  - (iii) length of oestrus cycle (days),
  - (iv) length of gestation period (days),
  - (v) recommended temperature for farrowing unit (oC).

**2008 – Question 5**

- (a) Describe how a farmer can ensure the production of high quality milk under the following headings;
- (i) hygiene,
  - (ii) composition.

- (b) For a spring-calving dairy herd, describe the feeding practices for a cow during the following periods;
- (i) early lactation,
  - (ii) mid-lactation,
  - (iii) late lactation.

- (c) Two criteria used to measure the breeding management of a suckler herd are;
- (i) reproductive efficiency,
  - (ii) calving interval.

Explain the above terms and outline how they can be optimised in a spring-calving suckler herd.

(48 marks)

**2008 – Question 6**

- (a) Account for the different nutrient compositions of a dairy ration and a beef ration.
- (b) Describe the feeding programme for a calf from birth to weaning in a spring-calving dairy herd.
- (c) List four advantages of in-wintering of ewes.
- (d) Explain the technique known as flushing in sheep production and give two of its advantages.

(48 marks)

**2007 – Question 1 – Part (a)**

- (a) To measure how intensively a farm is being managed, the term livestock unit per hectare is used. Explain the term livestock unit and give an approximate value for the livestock unit per hectare for an intensively managed dairy farm.

2007 – Question 3 – Option 1

- (a) The following table outlines the constituents of a ration that is fed as a supplement to hay or silage to a pregnant ewe.

<b>Constituent</b>	<b>Percentage of Ration by Weight</b>
Beet Pulp	40%
Rolled Barley	40%
Soya Bean Meal	20%
Mineral Mixture	

- (i) Give reasons, in each case, for the inclusion of the four constituents in the diet of a pregnant animal.
  - (ii) What would be the consequences if the ration were to be composed of 40% soya bean meal and 20% rolled barley?
- (b) Advise a sheep farmer, concerning the feeding of the ration in the table above to pregnant ewes, under the following headings:

- (i) when to start feeding the ration,
- (ii) the daily feeding rates,
- (iii) the role of scanning ewes in determining the daily feeding rate,
- (iv) the consequences for the pregnancy if the above ration is not fed.

(c) Explain four advantages of winter housing for pregnant ewes.

(48 marks)

**2007 – Question 6**

- (a) Outline the precautions taken to reduce mortality at calving time in a dairy herd.
- (b) In a beef suckler system, describe the management practices necessary to achieve high levels of production.
- (c) The following table shows the effect of body condition score (BCS) at calving on milk production in early lactation.

Treatment	BCS	Milk Yield kg/cow/day	Milk Fat %	Milk Fat kg/cow/day	Milk Protein %	Milk Protein kg/cow/day
A	2.73	25.50	3.71	0.94	3.14	0.80
B	3.00	26.50	3.81	1.01	3.18	0.84

- (i) What is meant by a body condition score?
- (ii) What is the relationship between body condition score and milk yield in the data above?
- (iii) What is the total yield of fat plus protein under treatment A?
- (iv) State two factors, other than BCS, that may influence the percentage fat in milk.

(48 marks)

**2006 – Question 1 – Part (i)**

- (i) Answer the following in the context of sheep:
  - (i) What is the approximate weight (in kg) of a lamb at birth?
  - (ii) What is the length (in days) of the oestrous cycle of a ewe?
  - (iii) What is the gestation period (in months) of a ewe?

**2006 – Question 1 – Part (j)**

(j) Most of the bacon pigs produced in Ireland are reared in integrated pig production units.

Explain the underlined term and give two advantages of these units.

**2006 – Question 6 – Part (b)**

(b) Explain the following in relation to a dairy cow:

- (i) Length of lactation period
- (ii) Lactation curve
- (iii) The relationship between lactation peak and total lactation yield
- (iv) The management of feeding in a spring-calving dairy herd to ensure the potential lactation peak is achieved.

**2006 – Question 8 – Part (a) & (b)**

- (a)
  - (i) Describe three ways by which the health of a calf is influenced by its intake of colostrum after birth.
  - (ii) Describe two environmental factors that need to be considered when housing farm animals.
  - (iii) In animal production there are target weights that must be achieved. In the case of replacement heifers give three reasons for reaching these targets.
- (b)
  - (i) Explain the technique known as “flushing”, which is used in sheep production.
  - (ii) Explain the advantages of each of the following in the management of a flock of sheep:
    - 1. Synchronised breeding
    - 2. Breeding out of season.
  - (iii) Describe the feeding of ewes during the final 6-8 weeks of pregnancy and give reasons for the changes in feeding regime.